What is Claim d is:

1. An isolated nucleic acid which encodes a phytase having a specific activity of at least about 20 U/mg protein,

wherein said specific activity is determined by incubating said phytase in a solution containing about 100 mM Tris-HCl, at a pH of about 7.5, about 1 mM $CaCl_2$, and about 1.6 mM sodium phytate at about 37°C for about 30 minutes,

wherein the isolated nucleic acid hybridizes to SEQ. ID. No. 1 under standard conditions either in 6xSSC, 0.6% SDS, 50°C overnight for Southern blotting or for PCR: 5 mM Mg^{2++}, Taq enzyme, premelting, 94°C for 2 minutes and 30 cycles of melting at 92°C for 20 seconds, annealing at 50°C for 30 seconds and extension at 72°C for 1 minute.

2. The isolated nucleic acid according to claim 1, wherein the nucleic acid is a DNA molecule.

3. A vector comprising:

an isolated DNA molecule which encodes a phytase having a specific activity of at least about 20 U/mg protein,

wherein said specific activity is determined by incubating said phytase in a solution containing about 100 mM Tris-HCl, at a pH of about 7.5, about 1 mM $CaCl_2$, and about 1.6 mM sodium phytate at about 37°C for about 30 minutes,

wherein the isolated DNA molecule hybridizes to SEQ. ID. No. 1 under standard conditions either in 6xSSC, 0.5% SDS, 50°C overnight for Southern blotting or for PCR: 5 mM Mg^{2++}, Taq enzyme, premelting, 94°C for 2 minutes and 30 cycles of melting at 92°C for 20 seconds, annealing at 50°C for 30 seconds and extension at 72°C for 1 minute,

wherein the DNA molecule is functionally linked to regulatory sequences capable of expressing a phytase from said DNA sequence.

4. The vector according to claim 3 wherein the, DNA molecule further comprises a leader sequence capable of

providing for the secretion of said phytase.

5. A prokaryotic host cell transformed by a nucleic acid, wherein the nucleic acid is an isolated nucleic acid which encodes a phytase having a specific activity of at least about 20 U/mg protein,

wherein said specific activity is determined by incubating said phytase in a solution containing about 100 mM Tris-HCl, at a pH of about 7.5, about 1 mM $CaCl_2$, and about 1.6 mM sodium phytate at about 37°C for about 30 minutes,

wherein the isolated nucleic acid hybridizes to SEQ. ID. No. 1 under standard conditions either in 6xSSC, 0.6% SDS, 50°C overnight for Southern blotting or for PCR: 5 mM Mg^{2++}, Taq enzyme, premelting, 94°C for 2 minutes and 30 cycles of melting at 92°C for 20 seconds, annealing at 50°C for 30 seconds and extension at 72°C for 1 minute.

6. A prokaryotic host cell according to claim 5, wherein the host cell is selected from the group comprising E. coli, Bacillus sp., Lactobacillus sp. and Lactococcus sp.

7. A eukaryotic host cell or organism transformed by a nucleic acid, wherein the nucleic acid is an isolated nucleic acid which encodes a phytase having a specific activity of at least about 20 U/mg protein,

wherein said specific activity is determined by incubating said phytase in a solution containing about 100 mM Tris-HCl, at a pH of about 7.5, about 1 mM $CaCl_2$, and about 1.6 mM sodium phytate at about 37°C for about 30 minutes,

wherein the isolated nucleic acid hybridizes to SEQ. ID. No. 1 under standard conditions either in 6xSSC, 0.6% SDS, 50°C overnight for Southern blotting or for PCR: 5 mM Mg^{2++}, Taq enzyme, premelting, 94°C for 2 minutes and 30 cycles of melting at 92°C for 20 seconds, annealing at 50°C for 30 seconds and extension at 72°C for 1 minute.

8. A eukaryotic host cell or organism according to claim 7, wherein the host cell is selected from the group comprising Aspergillus sp., Humicola sp., Pichia sp., Trichoderma sp. Saccharomyces sp. and plants such as soybean, corn and rapeseed.

9. A method for the production of phytase comprising:

transforming a prokaryotic host cell with an isolated nucleic acid, wherein the isolated nucleic acid encodes a phytase having a specific activity of at least about 20 U/mg protein, wherein said specific activity is determined by incubating said phytase in a solution containing about 100 mM Tris-HCl, at a pH of about 7.5, about 1 mM $CaCl_2$, and about 1.6 mM sodium phytate at about 37°C for about 30 minutes, wherein the isolated nucleic acid hybridizes to SEQ. ID. No. 1 under standard conditions either in 6xSSC, 0.6% SDS, 50°C overnight for Southern blotting or for PCR: 5 mM Mg^{2++}, Taq enzyme, premelting, 94°C for 2 minutes and 30 cycles of melting at 92°C for 20 seconds, annealing at 50°C for 30 seconds and extension at 72°C for 1 minute;

culturing or cultivating the prokaryotic host cell under conditions effective for producing phytase; and

recovering phytase.

10. A method for the production of a nucleic acid which encodes a phytase, wherein a probe comprising a nucleic acid which encodes a phytase is hybridized to a sample suspected of containing said nucleic, under standard hydridization conditions either in 6xSSC, 0.6% SDS, 50°C overnight or functional equivalents thereof for Southern blotting or for PCR 5 mM Mg^{2++}, Taq enzyme, premelting, 94°C for 2 minutes and 30 cycles of metlting at 92°C for 20 seconds, annealing at 50°C for 30 seconds and extensioin at 72°C for 1 minute,

wherein the nucleic acid which encodes a phytase has a specific activity of at least about 20 U/mg protein,

wherein said specific activity is determined by incubating said phytase in a solution containing about 100 mM

Tris-HCl, at a pH of about 7.5, about 1 mM $CaCl_2$, and about 1.6 mM sodium phytate at about 37°C for about 30 minutes, wherein the isolated nucleic acid hybridizes to SEQ. ID. No. 1 under standard conditions either in 6xSSC, 0.6% SDS, 50°C overnight for Southern blotting or for PCR: 5 mM Mg^{2++}, Taq enzyme, premelting, 94°C for 2 minutes and 30 cycles of melting at 92°C for 20 seconds, annealing at 50°C for 30 seconds and extension at 72°C for 1 minute.

11. A method for the production of phytase comprising:

transforming a eukaryotic host cell with an isolated nucleic acid, wherein the isolated nucleic acid encodes a phytase having a specific activity of at least about 20 U/mg protein, wherein said specific activity is determined by incubating said phytase in a solution containing about 100 mM Tris-HCl, at a pH of about 7.5, about 1 mM $CaCl_2$, and about 1.6 mM sodium phytate at about 37°C for about 30 minutes, wherein the isolated nucleic acid hybridizes to SEQ. ID. No. 1 under standard conditions either in 6xSSC, 0.6% SDS, 50°C overnight for Southern blotting or for PCR: 5 mM Mg^{2++}, Taq enzyme, premelting, 94°C for 2 minutes and 30 cycles of melting at 92°C for 20 seconds, annealing at 50°C for 30 seconds and extension at 72°C for 1 minute;

culturing or cultivating the eukaryotic host cell under conditions effective for producing phytase; and

recovering phytase.